

1 **CLAIMS**

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3 **1.** A method, comprising:

4 receiving audio content from one or more sources;

5 providing an audio content component for each source of audio content,
6 each audio content component generating event instructions from the received
7 audio content;

8 processing the event instructions to produce audio instructions;

9 providing one or more audio rendition managers, each audio rendition
10 manager corresponding to an audio rendition; and

11 routing the audio instructions to the one or more audio rendition managers,
12 wherein the audio rendition managers process the audio instructions to render the
13 corresponding audio renditions.

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15 **2.** A method as recited in claim 1, wherein each audio content
16 component is a component object having an interface that is callable by a software
17 component, the software component directing said generating the event
18 instructions.

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20 **3.** A method as recited in claim 1, wherein each audio rendition
21 manager is a component object having an interface that is callable by a software
22 component, the software component performing said routing the audio instructions
23 to the one or more audio rendition managers.

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1 4. A method as recited in claim 1, further comprising providing a
2 software component, wherein each audio content component is a component
3 object having an interface that is callable by the software component, the software
4 component directing said generating the event instructions, and wherein each
5 audio rendition manager is a component object having an interface that is callable
6 by the software component, the software component performing said routing the
7 audio instructions to the one or more audio rendition managers.

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9 5. A method as recited in claim 1, further comprising providing a
10 performance manager that performs said providing an audio content component
11 for each source of audio content, and performs said providing the one or more
12 audio rendition managers.

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14 6. A method as recited in claim 1, the method further comprising
15 providing a performance manager as a component object that performs said
16 providing an audio content component for each source of audio content, and
17 performs said providing the one or more audio rendition managers.

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19 7. A method as recited in claim 1, further comprising providing a
20 performance manager as a component object, wherein each audio content
21 component is a component object having an interface that is callable by the
22 performance manager, the performance manager directing said generating the
23 event instructions, and wherein each audio rendition manager is a component
24 object having an interface that is callable by the performance manager, the
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1 performance manager performing said routing the audio instructions to the one or
2 more audio rendition managers.

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4 8. A method as recited in claim 1, further comprising providing a
5 performance manager that performs said receiving the audio content, providing an
6 audio content component for each source of audio content, processing the event
7 instructions, and routing the audio instructions.

8
9 9. A method as recited in claim 1, further comprising providing a
10 performance manager that performs said receiving the audio content, providing an
11 audio content component for each source of audio content, processing the event
12 instructions, providing the one or more audio rendition managers, and routing the
13 audio instructions.

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15 10. A method as recited in claim 1, wherein the audio content includes
16 digital audio samples.

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18 11. A method as recited in claim 1, wherein the audio content includes
19 MIDI data.

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21 12. A method as recited in claim 1, wherein each audio content
22 component has one or more event instruction components that perform said
23 generating the event instructions.

1 **13.** A method as recited in claim 1, wherein each audio content
2 component has one or more event instruction components that perform said
3 generating the event instructions, each event instruction component corresponding
4 to part of the received audio content.

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6 **14.** A method as recited in claim 1, further comprising each audio
7 content component generating event instructions and routing the event instructions
8 to the one or more audio rendition managers before said processing the event
9 instructions.

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11 **15.** A method as recited in claim 1, further comprising a particular audio
12 content component generating event instructions, said processing the event
13 instructions to produce audio instructions, and routing the audio instructions
14 resulting from the particular audio content component to the one or more audio
15 rendition managers.

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17 **16.** A method as recited in claim 1, wherein the one or more audio
18 rendition managers receive audio instructions originating as event instructions
19 from one or more of the audio content components.

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21 **17.** A method as recited in claim 1, wherein one audio rendition
22 manager receives audio instructions originating as event instructions from one or
23 more of the audio content components.
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1 **18.** A method as recited in claim 1, wherein said providing an audio
2 rendition manager comprises providing a synthesizer component, the method
3 further comprising processing the audio instructions with the synthesizer
4 component to render the corresponding audio rendition.

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6 **19.** A method as recited in claim 1, wherein said providing an audio
7 rendition manager comprises providing a synthesizer component and audio wave
8 data consumers, the method further comprising processing the audio instructions
9 with the synthesizer component to generate audio wave data, and routing the audio
10 wave data to the audio wave data consumers.

11
12 **20.** A method as recited in claim 1, wherein said providing an audio
13 rendition manager comprises:

14 providing a synthesizer component;

15 providing audio wave data consumers;

16 defining logical buses that each correspond to one of the audio wave data
17 consumers;

18 the method further comprising:

19 processing the audio instructions with the synthesizer component to
20 generate multiple streams of audio wave data;

21 assigning each of the multiple streams of audio wave data to one or
22 more of the logical buses; and

23 routing audio wave data streams assigned to a particular logical bus
24 to the audio wave data consumer corresponding to said particular logical
25 bus.

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2 **21.** A method as recited in claim 1, wherein said providing an audio
3 rendition manager comprises:

4 providing a synthesizer component having multiple channel groups, each
5 channel group having a plurality of synthesizer channels to receive the audio
6 instructions;

7 providing a mapping component having mapping channels corresponding
8 to the plurality of synthesizer channels;

9 providing audio wave data consumers;

10 defining logical buses that each correspond to one of the audio wave data
11 consumers;

12 the method further comprising:

13 assigning the mapping channels to receive the audio instructions;

14 routing the audio instructions to a particular synthesizer channel in
15 accordance with the mapping channel assignments;

16 processing the audio instructions with the synthesizer component to
17 generate multiple streams of audio wave data;

18 assigning each of the multiple streams of audio wave data to one or
19 more of the logical buses; and

20 routing audio wave data streams assigned to a particular logical bus
21 to the audio wave data consumer corresponding to said particular logical
22 bus.
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2 **22.** One or more computer-readable media comprising computer-
3 executable instructions that, when executed, direct a computing system to perform
4 the method of claim 1.

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6 **23.** One or more computer-readable media comprising computer-
7 executable instructions that, when executed, direct a computing system to perform
8 the method of claim 7.

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10 **24.** One or more computer-readable media comprising computer-
11 executable instructions that, when executed, direct a computing system to perform
12 the method of claim 20.

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14 **25.** One or more computer-readable media comprising computer-
15 executable instructions that, when executed, direct a computing system to perform
16 the method of claim 21.

1 **26.** A method, comprising:

2 providing a performance manager that performs acts comprising:

3 receiving audio content from one or more sources;

4 providing an audio content component for each source of audio
5 content, each audio content component generating event instructions from
6 the received audio content;

7 processing the event instructions to produce audio instructions;

8 providing one or more audio rendition managers, each audio rendition
9 manager corresponding to an audio rendition, and each audio rendition manager
10 performing acts comprising:

11 providing a synthesizer component that receives the audio
12 instructions and generates audio wave data;

13 providing one or more audio wave data consumers that process the
14 audio wave data; and

15 routing the audio wave data to render the corresponding audio
16 renditions.

17
18 **27.** A method as recited in claim 26, wherein the performance manager
19 is a component object having an interface that is callable by a software
20 component.

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22 **28.** A method as recited in claim 26, wherein the performance manager
23 is a component object, and wherein each audio content component is a component
24 object having an interface that is callable by the performance manager, the
25 performance manager directing said generating the event instructions.

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2 **29.** A method as recited in claim 26, wherein each audio rendition
3 manager is a component object having an interface that is callable by a software
4 component.

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6 **30.** A method as recited in claim 26, wherein the performance manager
7 is a component object, and wherein each audio rendition manager is a
8 programming object having an interface that is callable by the performance
9 manager.

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11 **31.** A method as recited in claim 26, wherein the performance manager
12 is a component object that performs said providing the one or more audio
13 rendition managers, and wherein each audio rendition manager is a component
14 object having an interface that is callable by the performance manager.

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16 **32.** A method as recited in claim 26, wherein the audio content includes
17 digital audio samples.

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19 **33.** A method as recited in claim 26, wherein the audio content includes
20 MIDI data.

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22 **34.** A method as recited in claim 26, wherein each audio content
23 component has one or more event instruction components that perform said
24 generating the event instructions.
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1 **35.** A method as recited in claim 26, wherein each audio content
2 component is a component object having an interface that is callable by the
3 performance manager, and wherein each audio content component has one or
4 more event instruction components that are component objects having an interface
5 that is callable by the audio content component, the one or more event instruction
6 components performing said generating the event instructions.

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8 **36.** A method as recited in claim 26, further comprising each audio
9 content component generating event instructions, and routing the event
10 instructions to the one or more audio rendition managers before said processing
11 the event instructions.

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13 **37.** A method as recited in claim 26, further comprising a particular
14 audio content component generating event instructions, said processing the event
15 instructions to produce audio instructions, and routing the audio instructions
16 resulting from the particular audio content component to the one or more audio
17 rendition managers.

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19 **38.** A method as recited in claim 26, wherein the one or more audio
20 rendition managers receive audio instructions originating as event instructions
21 from one or more of the audio content components.

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23 **39.** A method as recited in claim 26, wherein one audio rendition
24 manager receives audio instructions originating as event instructions from one or
25 more of the audio content components.

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2 **40.** A method as recited in claim 26, wherein the synthesizer component
3 is a component object having an interface that is callable by a software
4 component.

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6 **41.** A method as recited in claim 26, wherein each audio rendition
7 manager is a component object, and wherein the synthesizer component is a
8 component object having an interface that is callable by the audio rendition
9 manager providing the synthesizer component.

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11 **42.** A method as recited in claim 26, wherein the one or more audio
12 wave data consumers are audio buffers provided as component objects, each audio
13 buffer having an interface that is callable by a software component.

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15 **43.** A method as recited in claim 26, wherein each audio rendition
16 manager is a component object, and wherein the one or more audio wave data
17 consumers are audio buffers provided as component objects, each audio buffer
18 having an interface that is callable by the audio rendition manager providing the
19 audio buffer.

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1 **44.** A method as recited in claim 26, wherein each audio rendition
2 manager performs acts further comprising:

3 defining logical buses that each correspond to one of the audio wave data
4 consumers;

5 assigning the audio wave data to one or more of the logical buses; and

6 routing the audio wave data assigned to a particular logical bus to the audio
7 wave data consumer corresponding to said particular logical bus.

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9 **45.** A method as recited in claim 26, wherein said providing a
10 synthesizer component comprises providing the synthesizer component with
11 multiple channel groups, each channel group having a plurality of synthesizer
12 channels that receive the audio instructions, and wherein each audio rendition
13 manager performs acts further comprising:

14 providing a mapping component having mapping channels corresponding
15 to the plurality of synthesizer channels;

16 assigning the mapping channels to receive the audio instructions;

17 routing the audio instructions to the synthesizer channels in accordance
18 with the mapping channel assignments;

19 defining logical buses that each correspond to one of the audio wave data
20 consumers;

21 assigning the audio wave data to one or more of the logical buses; and

22 routing the audio wave data assigned to a particular logical bus to the audio
23 wave data consumer corresponding to said particular logical bus.

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2 **46.** One or more computer-readable media comprising computer-
3 executable instructions that, when executed, direct a computing system to perform
4 the method of claim 26.

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6 **47.** One or more computer-readable media comprising computer-
7 executable instructions that, when executed, direct a computing system to perform
8 the method of claim 31.

9
10 **48.** One or more computer-readable media comprising computer-
11 executable instructions that, when executed, direct a computing system to perform
12 the method of claim 45.

13
14 **49.** An audio generation system, comprising:
15 a performance manager having an audio content component that generates
16 event instructions from audio content received from one or more sources, the
17 performance manager configured to process the event instructions to produce
18 audio instructions; and

19 an audio rendition manager that corresponds to an audio rendition, the
20 audio rendition manager configured to receive the audio instructions and process
21 the audio instructions to render the corresponding audio rendition.

1 **50.** An audio generation system as recited in claim 49, further
2 comprising a second audio rendition manager that corresponds to a second audio
3 rendition, the second audio rendition manager configured to receive the audio
4 instructions and process the audio instructions to render the corresponding second
5 audio rendition.

6
7 **51.** An audio generation system as recited in claim 49, further
8 comprising a second audio rendition manager that corresponds to a second audio
9 rendition, the second audio rendition manager configured to receive the audio
10 instructions and process the audio instructions to render the corresponding second
11 audio rendition, wherein the audio rendition and the second audio rendition are
12 rendered together.

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14 **52.** An audio generation system as recited in claim 49, wherein the
15 performance manager is a component object having an interface that is callable by
16 a software component.

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18 **53.** An audio generation system as recited in claim 49, wherein the
19 audio rendition manager is a component object having an interface that is callable
20 by a software component.

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22 **54.** An audio generation system as recited in claim 49, wherein the
23 performance manager is a component object, and wherein the audio content
24 component is a component object having an interface that is callable by the
25 performance manager.

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2 **55.** An audio generation system as recited in claim 49, wherein the
3 performance manager is a component object, and wherein the audio rendition
4 manager is a component object provided by the performance manager, the audio
5 rendition manager having an interface that is callable by the performance manager.
6

7 **56.** An audio generation system as recited in claim 49, wherein the
8 audio rendition manager comprises a synthesizer component configured to process
9 the audio instructions to generate audio wave data.
10

11 **57.** An audio generation system as recited in claim 49, wherein the
12 audio rendition manager comprises a synthesizer component configured to process
13 the audio instructions to generate audio wave data, and one or more audio wave
14 data consumers configured to process the audio wave data.
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16 **58.** An audio generation system as recited in claim 49, wherein the
17 audio rendition manager comprises:

18 a synthesizer component configured to processes the audio instructions to
19 generate audio wave data;

20 one or more audio wave data consumers configured to process the audio
21 wave data; and

22 a software component that defines logical buses corresponding respectively
23 to the one or more audio wave data consumers, the software component
24 configured to receive the audio wave data at the defined logical buses, and route
25

1 audio wave data that is received at a particular logical bus to an audio wave data
2 consumer corresponding to the particular logical bus.

3
4 **59.** An audio generation system as recited in claim 49, wherein the
5 audio rendition manager comprises:

6 a synthesizer component having multiple channel groups, each channel
7 group having a plurality of synthesizer channels configured to process the audio
8 instructions to generate audio wave data;

9 a mapping component having mapping channels corresponding to the
10 plurality of synthesizer channels, the mapping component configured to designate
11 the synthesizer channels that receive the audio instructions via the respective
12 mapping channels;

13 one or more audio wave data consumers configured to process the audio
14 wave data; and

15 a software component that defines logical buses corresponding respectively
16 to the one or more audio wave data consumers, the software component
17 configured to receive the audio wave data at the defined logical buses, and route
18 audio wave data that is received at a particular logical bus to the audio wave data
19 consumer corresponding to the particular logical bus.

20
21 **60.** An audio generation system as recited in claim 49, wherein the
22 audio rendition manager is a component object configured to provided processing
23 components to process the audio instructions, the audio rendition manager having
24 processing components comprising:

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1 a synthesizer component object having multiple channel groups, each
2 channel group having a plurality of synthesizer channels configured to process the
3 audio instructions to generate audio wave data;

4 a mapping component object having mapping channels corresponding to
5 the plurality of synthesizer channels, the mapping component object configured to
6 designate the synthesizer channels that receive the audio instructions via the
7 respective mapping channels;

8 one or more audio buffer component objects configured to process the
9 audio wave data; and

10 a multi-bus component object that defines logical buses corresponding
11 respectively to the one or more audio buffer component objects, the multi-bus
12 component object configured to receive the audio wave data at the defined logical
13 buses, and route audio wave data that is received at a particular logical bus to the
14 audio buffer component object corresponding to the particular logical bus.

15
16 **61.** An audio rendition manager, comprising:

17 a synthesizer component having one or more channel groups, each channel
18 group having a plurality of synthesizer channels configured to receive audio
19 instructions and produce one or more streams of audio wave data from the
20 received audio instructions; and

21 a plurality of audio buffers that receive one or more of the streams of audio
22 wave data.
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1 **62.** An audio rendition manager as recited in claim 61, further
2 comprising a second synthesizer component having one or more channel groups,
3 each channel group having a plurality of synthesizer channels configured to
4 receive the audio instructions and produce the one or more streams of audio wave
5 data from the received audio instructions.

6
7 **63.** An audio rendition manager as recited in claim 61, further
8 comprising a mapping component configured to receive the audio instructions
9 from one or more sources and route the audio instructions to the synthesizer
10 channels in accordance with audio instruction channel designations.

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12 **64.** An audio rendition manager as recited in claim 61, further
13 comprising:

14 a second synthesizer component having one or more channel groups, each
15 channel group having a plurality of synthesizer channels configured to receive the
16 audio instructions and produce the one or more streams of audio wave data from
17 the received audio instructions; and

18 a mapping component configured to receive the audio instructions from one
19 or more sources and route the audio instructions to the synthesizer channels in the
20 synthesizer component and in the second synthesizer component.
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1 **65.** An audio rendition manager as recited in claim 61, further
2 comprising a mapping component having mapping channels corresponding to the
3 plurality of synthesizer channels, the mapping component configured to receive
4 the audio instructions from one or more sources, designate the synthesizer
5 channels that receive the audio instructions via the respective mapping channels,
6 and route the audio instructions to the synthesizer channels.

7
8 **66.** An audio rendition manager as recited in claim 61, further
9 comprising a multi-bus component that defines logical buses corresponding
10 respectively to the plurality of audio buffers, the multi-bus component configured
11 to receive the one or more streams of audio wave data at the defined logical buses
12 and route one or more of the streams of audio wave data received at a particular
13 logical bus to the audio buffer corresponding to the particular logical bus.

1 **67.** An audio rendition manager as recited in claim 61, further
2 comprising:

3 a mapping component having mapping channels corresponding to the
4 plurality of synthesizer channels, the mapping component configured to receive
5 the audio instructions from one or more sources, designate the synthesizer
6 channels that receive the audio instructions via the respective mapping channels,
7 and route the audio instructions to the synthesizer channels; and

8 a multi-bus component that defines logical buses corresponding
9 respectively to the plurality of audio buffers, the multi-bus component configured
10 to receive the one or more streams of audio wave data at the defined logical buses
11 and route one or more of the streams of audio wave data received at a particular
12 logical bus to the audio buffer corresponding to the particular logical bus.

13
14 **68.** An audio rendition manager as recited in claim 61, further
15 comprising a performance manager that receives audio content from one or more
16 sources, the performance manager configured to instantiate an audio content
17 component for each source of audio content, each audio content component
18 generating event instructions from the received audio content, and wherein the
19 performance manager is configured process the event instructions to produce the
20 audio instructions.

1 69. An audio rendition manager as recited in claim 61, further
2 comprising:

3 a performance manager that receives audio content from one or more
4 sources, the performance manager configured to instantiate an audio content
5 component for each source of audio content, each audio content component
6 generating event instructions from the received audio content, and wherein the
7 performance manager is configured process the event instructions to produce the
8 audio instructions; and

9 a mapping component having mapping channels corresponding to the
10 plurality of synthesizer channels, the mapping component configured to receive
11 the audio instructions from the performance manager, designate the synthesizer
12 channels that receive the audio instructions via the respective mapping channels,
13 and route the audio instructions to the synthesizer channels.